

Facilities GIS Modeling for the REACT System

Completed Technology Project (2011 - 2012)



Project Introduction

Across the Nation, commercial industry and organizations in the public and private sectors, continue to look for and develop mobile application platforms and mobile apps (due to the wide reach and easy accessibility) so that capabilities which help modernize monitoring capabilities by building rich, connected interfaces, reduce the environmental impacts of paper waste, as well as help improve overall efficiencies and cost effectiveness nationwide. Benefits to the Nation's public and private sector organizations are associated with this continued migration and increasing adaption of mobile platform technology utilization.

The Real-Time Emergency Action Coordination Tool (REACT) was developed under contract to NASA and deployed for use by the entire agency. NASA REACT is a web-based system for emergency managers to manage crisis using geospatial mapping, real-time data feeds, standardized forms, and disaster impact models. The system utilizes a secure worldwide map and a reporting engine to report situation status throughout the agency by using detailed data and information about each NASA Center. NASA REACT is also available on mobile smartphones for authorized users to edit and view incident status information anywhere in the agency.

Stennis Space Center's focus on rocket propulsion testing and the desire to leverage the existing REACT infrastructure led to the development of a prototype propulsion test monitoring module for use within the REACT system--information was made available through the Emergency Operations Center using SSC's Institutional GIS. This module provides real-time data from propulsion testing support facilities. For this project, NASA identified as the areas of interest SSC's Gas House Distribution Plant and Gas Pipeline Network. Sensors were installed, tested and monitored to determine the relative health of the systems as it related to moisture, temperature and pressure.

Anticipated Benefits

The benefits to NASA funded missions include providing the capability to improve and enhance the preparation and monitoring of facilities and systems associated with rocket engine testing, as well as other site activities that require constant supervision for monitoring efficiencies and safety.

Benefits to the commercial space industry would be similar to those that would benefit NASA.

Benefits to other government agencies (e.g., DoD, DOE) that specifically have

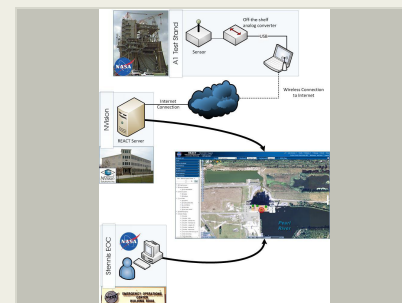


Illustration of REACT System

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

Center Innovation Fund: SSC CIF

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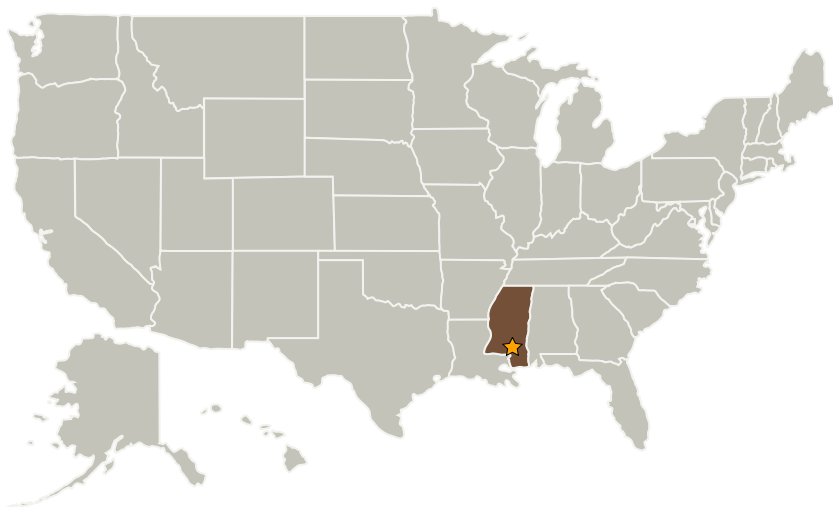


The benefits to NASA unfunded missions and planned missions, include providing the ability to increase safety, functionality and facility preparation associated with engine testing, as well as potentially be applicable to other facility activities that would find it advantageous to have these remote access supervisory improvements.

This capability would improve the monitoring efficiency of any facility related to a rocket engine testing complex.

large facilities where infrastructure and test facilities need to be monitored would be similar to those that have value to NASA which includes enabling the ability to observe and check these facilities remotely.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi

Primary U.S. Work Locations

Mississippi

Project Management

Program Director:

Michael R Lapointe

Program Manager:

Ramona E Travis

Project Manager:

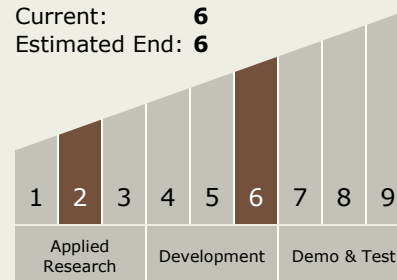
Ronald G Magee

Principal Investigator:

Ronald G Magee

Technology Maturity (TRL)

Start: 2
Current: 6
Estimated End: 6



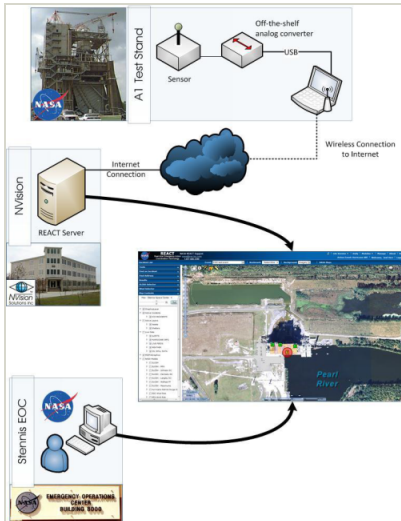
Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
 - TX11.4 Information Processing
 - TX11.4.2 Intelligent Data Understanding



Images



REACT System

Illustration of REACT System

(<https://techport.nasa.gov/image/4020>)